In re ENDERWICK ET AL., Application No. 10/616,737
Amendment A

Amendments to the Claims:

The listing of clams will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-4 (canceled)

Claim 5 (original): A method for maintaining a data structure, the method comprising:

identifying an ordered list of Internet Protocol security policies;

programming ordered associative memory entries associated with the ordered list of Internet Protocol security policies;

programming corresponding context memory entries associated with the ordered list of Internet Protocol security policies;

performing an associative memory lookup operation on said ordered associative memory entries based on a received packet to identify a particular associative memory entry location;

performing a lookup operation on the context memory based on the particular associative memory entry location to identify a particular Internet Protocol security policy of the ordered list of Internet Protocol security policies; and

adding a particular security association entry based on the received packet to said ordered associative memory entries, the particular security association entry corresponding to the particular Internet Protocol security policy, and the particular security association entry being added to said ordered associative memory entries prior to the particular associative memory entry location and after other security policy entries of said ordered list of Internet Protocol security policies located prior to the particular associative memory entry location.

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Claim 6 (original): The method of claim 5, wherein said adding the particular security association entry includes expanding a partition allocated for entries in an associative memory corresponding to the particular Internet Protocol security policy and its associated security association entries

Claim 7 (original): The method of claim 6, wherein said expanding a partition includes redistributing free space to multiple partitions in the associative memory.

Claims 8-16 (canceled)

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Claim 17 (original): An apparatus for maintaining a data structure based an ordered list of Internet Protocol security policies, the apparatus comprising:

means for programming ordered associative memory entries associated with the ordered list of Internet Protocol security policies;

means for programming corresponding context memory entries associated with the ordered list of Internet Protocol security policies;

means for performing an associative memory lookup operation on said ordered associative memory entries based on a received packet to identify a particular associative memory entry location;

means for performing a lookup operation on the context memory based on the particular associative memory entry location to identify a particular Internet Protocol security policy of the ordered list of Internet Protocol security policies; and

means for adding a particular security association entry based on the received packet to said ordered associative memory entries, the particular security association entry corresponding to the particular Internet Protocol security policy, and the particular security association entry being added to said ordered associative memory entries prior to the particular associative memory entry location and after other security policy entries of said ordered list of Internet Protocol security policies located prior to the particular associative memory entry location.

Claim 18 (original): The apparatus of claim 17, wherein said means for adding the particular security association entry includes means for expanding a partition allocated for entries in an associative memory corresponding to the particular Internet Protocol security policy and its associated security association entries

Claim 19 (original): The apparatus of claim 18, wherein said means for expanding a partition includes redistributing free space to multiple partitions in the associative memory.

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Claim 20 (original): The apparatus of claim 17, wherein said means for expanding the partition includes means for getting space from neighboring partitions.

Claim 21 (original): The apparatus of claim 17, wherein said means for expanding the partition includes means for feeing another starving partition.

Claim 22 (original): The apparatus of claim 17, wherein said means for adding the particular security association entry includes means for splitting the security association entry into a plurality of associative memory entries of said ordered associative memory entries.

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Claim 23 (original): A computer-readable medium containing computer-executable instructions for performing steps for maintaining a data structure based an ordered list of Internet Protocol security policies, said steps comprising:

programming ordered associative memory entries associated with the ordered list of Internet Protocol security policies;

programming corresponding context memory entries associated with the ordered list of Internet Protocol security policies;

performing an associative memory lookup operation on said ordered associative memory entries based on a received packet to identify a particular associative memory entry location;

performing a lookup operation on the context memory based on the particular associative memory entry location to identify a particular Internet Protocol security policy of the ordered list of Internet Protocol security policies; and

adding a particular security association entry based on the received packet to said ordered associative memory entries, the particular security association entry corresponding to the particular Internet Protocol security policy, and the particular security association entry being added to said ordered associative memory entries prior to the particular associative memory entry location and after other security policy entries of said ordered list of Internet Protocol security policies located prior to the particular associative memory entry location.

Claim 24 (original): The computer-readable medium of claim 23, wherein said adding the particular security association entry includes expanding a partition allocated for entries in an associative memory corresponding to the particular Internet Protocol security policy and its associated security association entries

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Claim 25 (original): The computer-readable medium of claim 24, wherein said expanding a partition includes redistributing free space to multiple partitions in the associative memory.

Claim 26 (original): An apparatus for maintaining entries of an associative memory based an ordered list of Internet Protocol security policies, the apparatus comprising:

the associative memory including ordered associative memory entries associated with the ordered list of Internet Protocol security policies;

a programming mechanism coupled to the associative memory;

a mechanism for generating lookup words to the associative memory based on which the associative memory performs a lookup operation to identify a particular associative memory entry location;

a context memory for performing lookup operations based on the particular associative memory entry location to identify a particular Internet Protocol security policy of the ordered list of Internet Protocol security policies;

wherein the programming mechanism is configured to add a particular security association entry based on the received packet to said ordered associative memory entries, the particular security association entry corresponding to the particular Internet Protocol security policy, and the particular security association entry being added to said ordered associative memory entries prior to the particular associative memory entry location and after other security policy entries of said ordered list of Internet Protocol security policies located prior to the particular associative memory entry location.

Claim 27 (original): The apparatus of claim 26, wherein the programming mechanism expands a partition allocated for entries in an associative memory corresponding to the particular Internet Protocol security policy and its associated security association entries

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Claim 28 (original): The apparatus of claim 26, wherein the programming mechanism redistributes free space to multiple partitions in the associative memory.

Claim 29 (original): The apparatus of claim 26, wherein the programming mechanism is further configured to split a range corresponding to the particular security association entry into a plurality of associative memory entries.

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